

## FOLDABLE ELECTRONIC EQUIPMENT COMPRISING A SLIDABLE HINGE INCLUDING LEAF SPRING

### TECHNICAL FIELD

[0001] The invention relates to an electronic equipment comprising a first part and a second part that are interconnected through a hinge.

### RELATED PRIOR ART

[0002] Today it is common technology to provide electronic equipment such as mobile telephones with two parts that are interconnected through a hinge arranged between the two parts. These kinds of mobile telephones are also referred to as clamshell telephones. An example of such a mobile telephone is disclosed in e.g. EP-A1-1 083 725 that shows a mobile telephone provided with a flip cover that is movable between a first position and a second position in response to a biasing force provided by an arrangement positioned in the hinge. The hinge arranged between the two parts are arranged as commonly known hinges, i.e. with protruding portions that fits between each other around a common hinge axis and with a hinge pin extending through openings provided in the protruding portions. A helical spring is arranged in the hinge for biasing the first part and the second part away from each other.

[0003] The hinge mechanisms of such prior art devices are relatively complicated and require a delicate and advanced solution in relation to electrical transmission between the two parts in order not to be fragile. Furthermore, the hinge is a dominant feature of the exterior of the telephone and from an aesthetic point of view it is desirable to make the hinge less dominant.

### OBJECT OF THE INVENTION

[0004] It is therefore an object of the invention to provide an electronic equipment comprising two interconnected parts with a hinge that is less dominant to the exterior of the electronic equipment and that allows more simple means for electrical transmission between the two parts across the hinge.

### SUMMARY OF THE INVENTION

[0005] The object of the invention is achieved by arranging the hinge between the two parts in such manner that it comprises at least one leaf spring that is connected to the first part and the second part and is arranged to force the first part and second part away from each other.

[0006] Thereby it is obtained that it is possible to achieve a smooth and visibly appealing outer appearance of the electronic equipment both in the folded and unfolded state thereof. Furthermore, the electrical contact between the first part and the second part need no longer be established over mutual rotating elements, but can simply follow the curvature of the leaf spring.

[0007] In a preferred embodiment the hinge comprises a hinge member arranged between the first part and the second part. The hinge member supports the leaf spring and prevents the first part and second part from twisting. Furthermore, the hinge member can be arranged to limit the maximum opening angle between the first part and the second part.

[0008] Preferably, the hinge member is arranged slidably in relation to at least one of the first part and the second part. Thereby the hinge member can be arranged to cover the gap between the first part and the second part when the electronic equipment is unfolded or opened, whereas it can be displaced into the first part or the second part when the electronic equipment is folded or closed.

[0009] The at least one leaf spring is preferably arranged on an outer side of the hinge member, such that an appealing outer appearance can be achieved.

[0010] In one embodiment the hinge member is provided with a camera, and the at least one leaf spring is arranged on an outer side of the hinge member and is provided with an opening that is aligned with the camera when the first part and the second part are forced away from each other. In this manner the camera is positioned in the hinge of the electronic equipment and does not occupy space elsewhere on the electronic equipment.

[0011] In order to ensure good performance of the biasing hinge it may be provided with more than one leaf spring.

[0012] If more than one leaf spring is used one is fixed in relation to both the first part and the second part, whereas the additional leaf springs are slidably arranged in relation to at least one of the first part and the second part. Thereby the different bending radiuses of each leaf spring are accounted for.

[0013] The electronic equipment may be a mobile radio station, such as a mobile telephone.

[0014] It shall be emphasised that the term “comprise/comprising” when used in this specification is taken to specify the presence of stated features, integers, steps or components but does not preclude the presence or addition of one or more other features, integers, steps components or groups thereof.

### DESCRIPTION OF THE DRAWINGS

[0015] The invention will be described in detail in the following with reference to the drawings in which

[0016] FIG. 1 shows a first embodiment of an electronic equipment in the shape of a mobile telephone;

[0017] FIG. 2 shows a cross-section of a locking mechanism provided in the mobile telephone shown in FIG. 1;

[0018] FIG. 3 shows a second embodiment of an electronic equipment in the shape of a mobile telephone;

[0019] FIG. 4 shows a hinge member arranged between the two hinged parts;

[0020] FIG. 5 shows a cross-section through the hinge of a mobile telephone according to the invention;

[0021] FIGS. 6a and 6b show in exploded and assembled view the structure of the hinge comprising a plurality of leaf springs; and

[0022] FIG. 7 shows a mobile telephone according to the invention from its outer side.

### DETAILED DESCRIPTION OF AN EMBODIMENT OF THE INVENTION

[0023] FIG. 1 shows an electronic equipment in the shape of a mobile telephone 1 comprising a first part 2 and a second part 3 that are interconnected through a hinge 4. A mobile telephone 1 of this kind is sometimes referred to as a clamshell telephone. In the shown embodiment the first part 2 is provided with buttons 5 and a microphone 6, and the second part 3 is provided with a display 7 and a